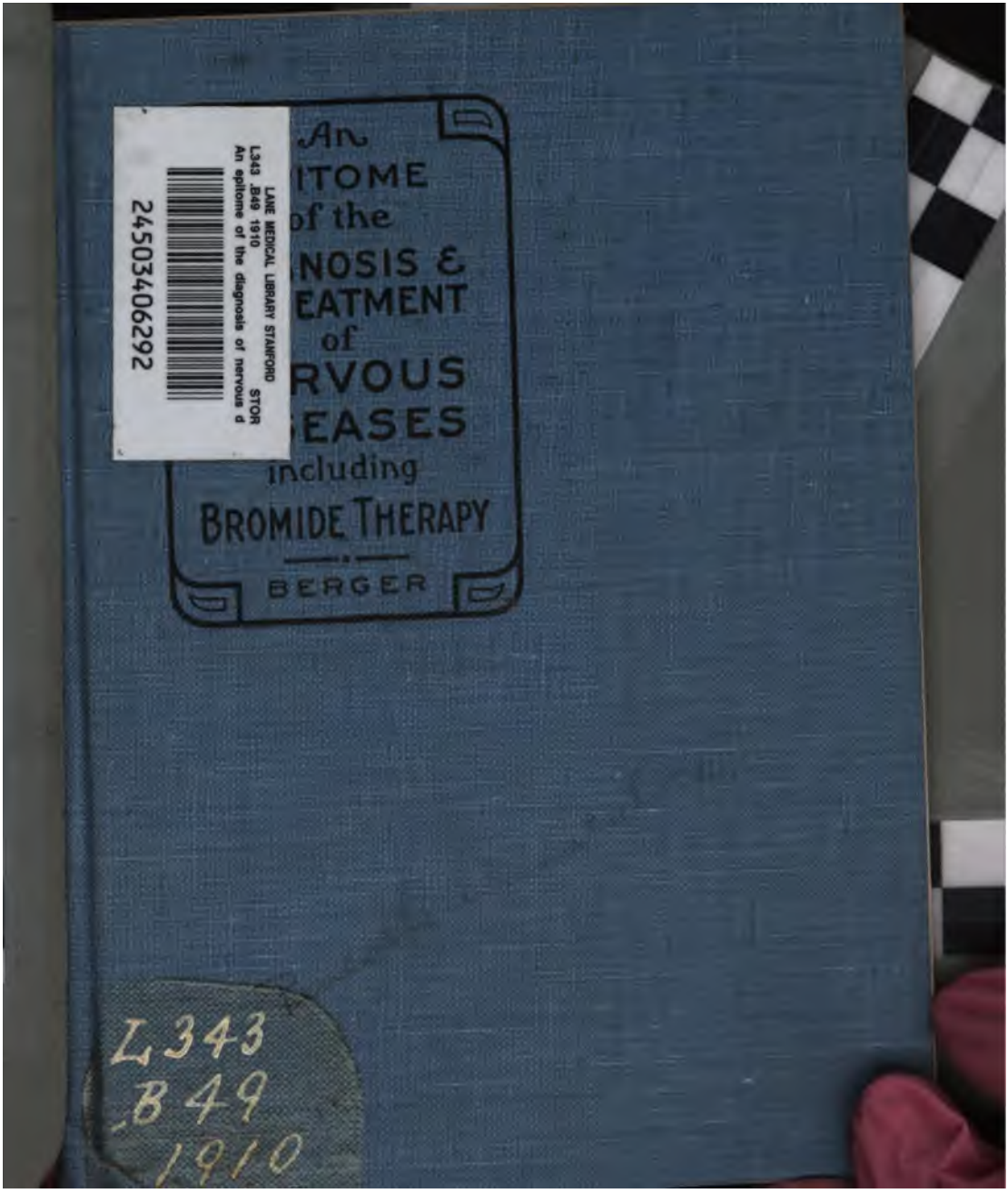

An Epitome

of the

Diagnosis and Treatment

of

Nervous Diseases

including

Bromide Therapy

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Contents.

Illustrations.

Preface to the First Edition.

THE presentation of this pocket edition on the subject of nervous diseases has been the outcome of the numerous complaints of my fellow-students and practitioners on the voluminous and sometimes ambiguous character of our larger text-books on this subject. This condensed and epitomized treatise will be found to be a handy reference book on the subject, and because of its small size can be conveniently carried about one's person, and furthermore will permit the practitioner to record clinical findings and other clinical notes. The student in medicine will also find some space valuable for adding additional notes derived from personal observation, from lectures and clinics.

The section on diagnosis is given the most attention in this discussion. The simplicity of the same will at once attract the attention of the reader. The statements herein made are governed by the law of the frequency of the occurrence of the symptoms in similar diseases.

For the benefit of the profession I have appended a chapter on **Bromide Therapy** in which special reference is made to the indications of the bromides and the necessity of prescribing only the pure bromides such as are contained in **Peacock's Bromides.**

303 North East St.,
Indianapolis, Ind.

Topical Diagnosis of Diseases of the Brain and Spinal Cord

The observations of Fritsch, Hitzig & Golz, Starr, and many others resulted in the finding of certain definite areas in the cerebral cortex, each having specific functions.

(A) BRAIN LOCALIZATION.

Motor Area: Is situated around the Rolandic fissure in the ascending frontal and ascending parietal convolutions. The centers for the leg, arm and the face are arranged in this order from above downward.

- **Irritative lesions** produce spasms (Jacksonian Epilepsy) or convulsions on the opposite side of the body.
- **Destructive lesions** cause paralysis (Hemiplegia) on the opposite side of the body.
- The leg, arm and the face may be affected all together or separately, dependent upon location and extent of lesion. When one of these centers is alone involved the condition is called "monoplegia."
- Jacksonian Epilepsy is a frequent accompaniment of Brain Tumors. See page 15.
- Paralysis of the **cerebral type** is characterized by spasticity, absence of wasting, and no deviation from the normal electrical reactions.

Center for Voluntary (Articulate) Speech: Is situated on the left side in the inferior frontal convolution of Broca. If this center is destroyed there occurs MOTOR APHASIA. (Loss of memory as to how one should move tongue and articulate.)

- The remaining part of the frontal lobe is the center for higher psychical functions.

Center for Hearing: Is located in the superior convolution of the left tempero-sphenoidal lobe. If destroyed there results word deafness or SENSORY APHASIA. (Failure of perception spoken language.)

Center for Vision: lies on the mesial surface of the occipital lobe. A destructive lesion on the right side causes left-sided homonymous hemianopia. A destructive lesion on the left side causes right-sided homonymous hemianopia.

Center for perception of written language: lies in the angular convolution surrounding the first temporal fissure.

Sensory area: lies in back of the Rolandic Fissure in parietal lobe. All forms of sensations are interpreted in this area.

Cerebellum: Herein lies the center for co-ordination of voluntary movements. Lesions such as tumors produce ataxia and vertigo. The ataxia affects the trunk and legs but not the arms.

Internal Capsule: Lesion of the posterior limb causes hemiplegia on opposite side of body, and is permanent. It is the usual seat of intracerebral hemorrhage (apoplexy). Lesions of the anterior limb, but close to the posterior limb, causes hemianaesthesia on the opposite side, and often the cutaneous sensation is alone affected. The special senses may also suffer if the posterior limb is involved.

Central Ganglia: Lesions here result as in the preceding only when the pyramidal fibers are affected. Destruction of the posterior portion of the optic thalamus causes complete hemianopia on the opposite side.

Corpora Quadrigeminae.

If both anterior tubercles are destroyed, there occurs total blindness and paralysis of the Motor Oculi Nerve and the Trochlear Nerve (Strümpell).

Destruction of the posterior geniculate bodies causes some disturbances in hearing.

Crura Cerebri: Destructive lesions results in paralysis of arm, leg and face of opposite side, and paralysis of the motor oculi on the same side as the lesion.

Pons: Destructive lesions results in hemiplegia and crossed facial paralysis. Hemi-ataxia is common, i. e., patient falls toward side of lesion.

Medulla: Destructive lesions cause bulbar symptoms. See page 11.

Diagram.

Outer Surface of Brain.

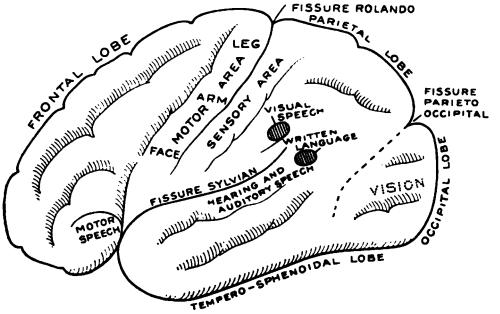
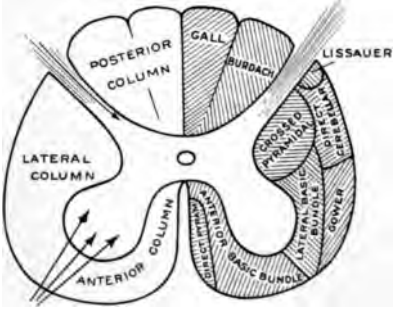


Diagram.

Cross Section of Cord. Showing Tracts of the Cord.



(B) SPINAL LOCALIZATION.

Crossed Pyramidal Tract: The fibers of the corona radiata arise from the motor area of the brain and constitute the pyramidal tract which forms the internal capsule and passes through crus, pons and then crosses to the opposite side at the motor decussation in the medulla, and thence down into the cord. In a unilateral lesion of the cord or when any disease destroys a part of this tract, there occurs a paralysis of all muscles below the lesion, and on the same side of the lesion. The resulting paralysis belongs to the cerebral type and is characterized by: spasticity and rigidity, no wasting and no change in electrical response. Descending degeneration occurs below the lesion.

Direct Pyramidal Tract of Turck: The fibers also arise from the ganglion cells in the motor area but do not decussate. Lesions thereof are unimportant.

Columns of Gall and Burdach: The sensory fibers (90% of which arise from the post root ganglia) enter the cord through the posterior nerve roots, pass up in the columns of Gall and Burdach and cross to the opposite side at the sensory decussation. From here the greater part goes to the optic thalamus and then to the sensory cortex.

In destructive lesions of these tracts or if the cord be severed at any level, an ascending degeneration will occur above the lesion.

The sensory fibers contained in these tracts are those of touch, pain, muscle sense and temperature. Also fibers necessary for completion of the reflex arc.

Some of the fibers pass into the **column of Clark** around the posterior horn (from first dorsal to third lumbar) and are continued into the **Direct Cerebellar Tract.** These fibers are essentially for equilibrium. In locomotor ataxia the posterior column is destroyed, hence ataxia is a prominent symptom.

Diseases of these columns result in disturbances of one or more of these sensations.

Gower's Tract: These fibers arise from the sensory nerve roots which as soon as they enter the cord **decussate** through the posterior commissure, excepting the fibers of muscle sense which pass up the cord on the same side. The fibers carrying the other forms of sensation decussate.

Anterior Horn: Is motor in function. The motor nerves to the muscles arise from the ganglion cells in its gray matter. If diseased or destroyed as in poliomyelitis there results a paralysis of those muscles supplied by the nerves arising from the destroyed anterior horn.

The anterior horn being also trophic in nature, muscular atrophy will also occur. The nutrition of the skin and joints will also be affected The Cilio-Spinal Center lies between the seventh cervical and second dorsal vertebrae. If irritated, the pupil contracts. In destructive lesions it dilates.

The genital center is in the sacral segment (1-3). The Bladder and Rectal Center is in 3-4 segment.

Such paralyses are of the **spinal type** and are characterized by flaccidity accompanied by atrophy and wasting of muscles, no response to the faradic current and reaction of degeneration. The loss of power is commensurate with wasting. Paralysis of the spinal type is found in poliomyelitis.

The muscles paralyzed are dependent upon the segment of the cord that is destroyed.

Posterior Horn: Contains all of the sensory fibers. The pain and temperature fibers decussate while those of muscle sense do not.

Lesions of the Sensory Path:

Irritative lesions: parasthesia, formication, pain and cold. If one side of the body alone is affected, the lesion must be in the brain. If only a small part of the body is affected, the lesion is in the nerve or in some segment of the cord.

Destructive Lesions: Cause anaesthesia. Usually local and dependent upon the segmental lesion. In **complete transverse section of the cord** there occurs anaesthesia below the lesion. There is also total flaccid paralysis of all muscles below the lesion, reflexes are lost, rapid muscular wasting and loss of faradic irritability.

Unilateral lesions of the cord:

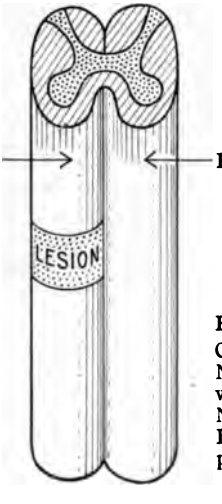
Motor Symptoms: Atrophy and paralysis of flaccid type just at level of lesion.

Spastic partial paralysis without appreciable atrophy of muscles below the lesion

Sensory Symptoms:

Anaesthesia only at level of lesion (zone of anaesthesia). No sensory disturbance below. On opposite side of lesion there is complete anaesthesia below the lesion; pain, temperature and to a lesser extent tactile sense.

Brown-Séquard's Paralysis: Diagrammatically represented; such a condition occurs in syringomyelia.



At the level of the lesion:

1. Atrophy and flaccid paralysis.
2. Zone of cutaneous anaesthesia.

Below lesion:

Spastic paralysis without appreciable wasting.

Below lesion:

Complete anaesthesia.
No paralyses. No wasting.
Normal reflexes.
Loss of sensibility to pain and temperature.

Pacchymeningitis Hemorrhagica Interna.

Definition: A variable sized collection of blood, usually encapsulated, located on the internal surface of the dura, most frequently in the parietal region, and usually occurring in chronic ALCOHOLICS, general paresis of the insane, arterial and blood diseases and after accidents.

Symptoms: "A hematoma compressing the brain will produce symptoms in proportion to its size, and dependent upon its location."

Onset: Usually sudden with signs of **cerebral compression.**

1. Coma: variable.
2. Bradycardia: occurs early.
3. Cheyne-Stokes respiration: occurs later.
4. Choked disk.
5. Pupils contracted.

Jacksonian Epilepsy: Muscular twitchings and convulsions occur when a hematoma presses upon the motor area. The twitchings are on the reverse side of the lesion.

Recurring attacks: Is very diagnostic of this disease. The hematoma enlarges and post-mortem examination shows a laminated blood clot. The attack may be excited by an alcoholic debauch.

Basilar Meningitis.

Definition: A tubercular inflammation of the meninges having a special predilection for the base of the brain, occurring in the form of miliary tubercles or various sized exudations in the brain or ventricles as a terminal event in advanced pulmonary tuberculosis, more often in children than in adults.

Symptoms: "Are those referable to the nerves at the base of the skull plus signs of cerebral compression due to the hydrocephalic fluid."

Prodromes: Are always present and are of a variable duration. The child may be convalescing from measles or whooping cough, or has some tubercular lesion which is progressing badly. The child becomes cranky, thin and restless.

Onset: With irritative symptoms:

1. Headache.
2. Vomit of the cerebral explosive type.
3. Slight fever: 102° is the limit.
4. Constipation.

As the case progresses:

Headache gives place to delirium and this, in turn, to coma.

Irregular paralysis and monoplegias.

"One-sided paralysis of any part associated with automatic movements" (O'Dwyer).

Opisthotonos and rigidity of neck is not as characteristic as in cerebro-spinal meningitis.

Physical Signs:

1. Bulging fontanelles.
2. Pulse: very irregular. Slow in early stage.
3. Respiration: first rapid and sighing, then Cheyne-Stokes.
4. Kernig's Sign and stiff neck is not present as often as in cerebro-spinal meningitis.
5 Hemiplegias and monoplegias
6. Lumbar Puncture: a clear fluid containing small mononuclear lymphocytes and tubercle bacilli. In the other form of meningitis it is cloudy—see below.
7. Eye Symptoms: Pupils are first contracted. Later they are irregular and dilated. Any of the following may occur: ptosis, strabismus or nystagmus.
8. Paralysis of Cranial Nerves: Facial nerve is most frequently involved.
9. Absolute relaxation of entire body.

Spasticity occurs in cerebro-spinal meningitis, hence, the neck is very rigid and opisthotonos occurs. Eruptions are present in this form (Herpes Labialis and petechia), and the symptoms of invasion are more severe. Fluid withdrawn from spinal canal is cloudy and contains an intracellular diplococcus.

Sinus Thrombosis of Cerebral Sinuses.

Definition: A thrombo-phlebitis of the sinuses of the brain, usually due to extension of suppurative inflammation from anywhere about the scalp, face or brain, especially after a suppurative otitis and mastoiditis. The transverse and petrosal sinuses are here most apt to be involved. If of non-inflammatory origin, as may occur in marantic children, then the superior longitudinal sinus is the seat of thrombosis.

Symptoms:

Objective:

Those due to **venous stasis:**

Swelling behind the mastoid process, if transverse sinus is thrombosed and tenderness may be elicited over the emissary vein. Jugular vein collapsed.

Passive congestion of retina (choked disk) when cavernous sinus is occluded. Œdema of eyelids and conjunctiva. Frontal veins dilated.

Epistaxis: when superior longitudinal sinus is thrombosed.

Symptoms of irritation or paralysis of those cranial nerves near the seat of inflammation (trigeminal neuralgia, trismus, nystagmus or strabismus), etc.

Subjective:

Nervous Symptoms: varies from a headache to coma.

Symptoms due to suppurative process:

Septic temperature: remittent or intermittent.

Pronounced leucocytosis with a relative increase of the polymorphonuclears.

Marked rigors, sweat and prostration.

Secondary metastatic deposits may occur in untreated ear cases.

Encephalitis.

Definition: An inflammation of the brain, either suppurative (brain abscess) or non-suppurative in character, usually following traumatism to skull, otorrhoea, pyaemic and embolic diseases, the abscess being either single (localized) or multiple (metastatic or generalized).

Diagnosis:

Acute Abscess:

1. **History of traumatism.**
2. **Marked headache** which passes into dullness, then delirium and finally coma.
3. **Cerebral vomit and vertigo.**
4. Insomnia.
5. **Focal symptoms: Paralyses** are most frequent.
   Hemiplegia and monoplegias.
   Ocular muscle paralyses:
   Nystagmus and hemianopia, etc.
   Staggering gait occurs early in cerebellar abscess
   Aphasia in left-sided cerebral abscess.
6. Fever: Rapid elevation of temperature associated with rigors and chills.

Chronic Abscess.

1. A variable period elapses between the development of suppurative otitis and mastoiditis.
   If of pyaemic or embolic origin, examine for signs of ulcerative endocarditis, empyaema, pulmonary gangrene.
2. **Headache:** usually localized.
3. **Vomit and vertigo** in some cases.
4. Irregular fever: often **subnormal.** Is never very high, especially in encapsulated abscess.
5. **Slow pulse.**
6. **Choked disk:** not as marked as in brain tumor.
7. **Focal Symptoms:** See under topical diagnosis, page 1. Suffice to add that abscesses following ear disease are situated in the temporal lobe, hence look for aphasic disturbances, word deafness, verbal amnesia, etc. (Some claim tenderness on percussion of temporal region—the sign is not trustworthy.)

Multiple Sclerosis.

Definition: A chronic degenerative disease in which diffuse sclerotic patches develop in the brain and cord and attacks by preference, young adults. Its etiology is uncertain, but is best considered as a gliosis and the nerves are involved late, hence paralysis only occurs as a late feature

Diagnosis:

Symptoms: Headache, vertigo and occasional epileptiform attacks.

Signs:

1. **Intention Tremor:** The patient exhibits the tremor only when attempting motion but can be controlled by his own volition. The tremor is more marked in the hands than in the legs.
2. **Ataxia:** Resembles locomotor ataxia but differs in that the gait here is quick and spastic, while in tabes it is slow and dragging.
3. **Speech Disturbance:** slow, scanning speech.
4. **Nystagmus.**
5. **Increased reflexes** differentiates it from tabes in which the reflexes are lost.
6. **Emotional outbreaks** of laughing or crying.
7. **Paresis develops late.** The gait then loses its spastic character and becomes dragging.
8. **Negative signs:**
   Absence of sensory symptoms.
   Bladder symptoms not as frequent as in tabes.

General Paresis.

Definition: A chronic, progressive, degenerative disease of the insane, characterized by mental and psychical disturbances, always increasing in severity, and is usually of syphilitic origin, developing between the ages of 30 and 50.

Diagnosis:

Onset: gradual and insidious.
Change in nature of the individual, i. e., mental individuality and facial expression.
Weakening of memory, forgetfulness and inattentiveness. Judgment impaired.
Lack of moral control.
Neurasthenic-like symptoms.

As the disease advances other mental symptoms appear:—
Exaltation: especially maniacal.
Systematized delusions of grandeur.
Progressive dementia.

Motor Disturbances:
Speech: slow, hesitating, weak, slurring and finally cannot be understood.
"Labials and dentals pronounced with difficulty."

Handwriting: letters are irregular and tremulous. Letters and even words are omitted.

Tremor: of face, lips, tongue and hands.

Pupils: unequal and immobile.
Oftentimes Argyll-Robertson pupil. (Pupil reacts to light but not to accommodation.)

Knee Jerk: exaggerated excepting when the disease develops after locomotor ataxia.

Convulsions lasting only a short time may appear early in the disease and increase in frequency as the disease advances.

Progressive paretic disturbances: in walking and urinating. The patient becomes bed-ridden. He dies from complicating diseases.

Bulbar Paralysis.

Definition: A progressive, chronic, degenerative disease of the nuclei in the medulla, characterized by a paralysis of the lips, tongue and larynx. It may exist alone or with progressive muscular atrophy or with amyotrophic lateral sclerosis.

Diagnosis:

Onset: slow and insidious.

Speech Disturbance: "alalia." Those letters in which the tongue comes into play in articulating, as L, R, K, T, are pronounced indistinctly. It is not an aphasia as occurs in general paresis, but the disturbance in speech is due to defective innervation.

Atrophy of Tongue: thinned, flabby, less rounded and furrowed. Impairment of function is in proportion to atrophy. When atrophy is marked there is not only speech impediment but also defective deglutition and mastication.

Difficulty in using the Lips: labials, as P, B, M, are imperfectly pronounced. The lips become thin and wrinkled. There is inability to whistle. The mouth is kept open constantly due to paralysis of the orbicularis muscle.

Paralysis of Muscles of Pharynx and Larynx: results in difficulty in swallowing and oftentimes the food is regurgitated through the nose. The voice is monotonous. Salivation is also present. There is danger of bronchitis and pneumonia.

Note: There are no sensory disturbances in this disease.

Progressive Muscular Atrophy.

Definition: A progressive, chronic, degenerative disease, involving the motor nuclei in the anterior horn of the cord, characterized by loss of muscle power which is commensurate with wasting. The disease is usually associated with bulbar paralysis.

Diagnosis:

"Symptoms can be explained by the changes in the anterior horn."

1. **Wasting of muscles:** (trophic function of anterior horn.) Wasting first appears in hands. The legs are involved last
2. **Loss of muscle force** in proportion to the amount of wasting. The paralysis is flaccid.
3. **Deformities and contractures** are secondary. Lordosis is very common.
4. **Change in electrical response:** The muscles do not respond readily to stimulation, and finally they fail to respond to either galvanic or the faradic current
5. The anterior horn being only involved there are no sensory symptoms. The anterior horn is purely motor.
6. **Bulbar Paralysis,** see page 11, either precedes this disease or follows.

Note: A lesion in a mixed peripheral nerve also causes paralyses and wasting, but sensory disturbances are also present.

Amyotrophic Lateral Sclerosis.

Definition: A chronic degenerative disease closely allied to the preceding, in which the seat of degenerative changes is located in the pyramidal (lateral) tract of the cord.

Symptoms: Resemble those of progressive muscular atrophy, but in addition to the atrophic paralysis of the upper extremity (which develops more rapidly in amyotrophic lateral sclerosis) there is found a SPASTIC PARALYSIS of the lower extremities and AN ATROPHIC PARALYSIS OF SOME OF THE BULBAR NERVES. The paralysis and wasting begins in the small muscles of the hand and spreads upward to the arm.

The spastic paralysis affecting the legs results in a stiff walk and patient is obliged to take small steps.

The reflexes are increased. Muscles may show RD.

Bulbar symptoms develop after a variable period.

Note: It is advisable to consider all the three preceding diseases together.

	CEREBRAL HEMORRHAGE (Apoplexy)	CEREBRAL SOFTENING (Embolism)	CEREBRAL THROMBOSIS
AGE	Past 50.	Young persons: due to rheumatic endocarditis.	Both in young and old. Young: Syphilis.
HISTORY	Signs of arteriosclerosis.	Heart Disease: especially endocarditis.	Old: Arteriosclerosis, cardiac hypertrophy, interstitial nephritis.
ONSET	Usually abrupt with coma.	Usually sudden coma of short duration.	Slow and prolonged: coma slight or absent.
PULSE	Slow and full.	Rapid and compressible.	Pulse is not full.
RESPIRATION	Stertorous, deep, noisy.	Not stertorous; not so deep.	Respiration is not stertorous.
FACE	Ashen gray or cyanotic.	Pallor (?) not always present.	Pale.
PUPILS	Dilated and unequal. Do not react to light. Conjugate deviation of eyes.	.....	Syphilitic ocular signs are: irregular, non circular pupils responding sluggishly to light, ocular muscle paralyses.
TEMPERATURE	Normal or subnormal during coma.	Normal or a little above. The larger the embolus the higher the fever.	100° F.
REFLEXES	Absent during coma.	.....	.....
HEMIPLEGIA	Face, arm and leg of same side are paralyzed except in lesions of lower part of pons, crus, and medulla. Paralysis appears immediately.	.....	Approaches gradually, preceded by numbness and tingling. In the young there are multiple attacks, each time involving another part of the body.
ELECTRICAL RESPONSE	In all cerebral lesions there is no departure from the normal. The paralysis is flaccid and not accompanied by wasting.	Same.	Same.
APHASIA	Absent.	Present. Because left middle cerebral artery is usually affected.	Present. Besides loss of memory there is impaired speech, headache, dizziness and vertigo and stupor.
SECONDARY SYMPTOMS	Spastic Paraplegia. Exaggerated Reflexes. Febrile Reaction.	Same.	Present: But when due to syphilis, recovery is complete because blood vessels are not entirely occluded.

Hemorrhage into the Brain.

Clinical Varieties:

1. **Meningeal:** The blood may be either extra or intra-meningeal. The usual causes are rupture of miliary aneurisms and fracture of the skull. Middle cerebral vessels are most frequently the seat of aneurisms.

   The blood in intra-meningeal hemorrhage usually finds its way into the subarachnoid space, hence if lumbar puncture be performed, a bloody fluid can be withdrawn.

2. **Intra-Cerebral:** Hemorrhage into the brain substance arises either from the Circle of Willis and central arteries, or from the cortical blood vessels. The central arteries are most often affected, especially the lenticular striae. The structures involved in order of frequency are: corpus striatum, optic thalamus, pons, centrum ovale, medulla and cerebellum. Capillary hemorrhage occurs in the cortex, the other hemorrhages are arterial. Apoplexy proper is a disease of advanced life, owing to arteriosclerosis.

Symptoms: See chart on page 13. The abrupt onset is due to the sudden compression of the brain. The paralysis is due to the destruction of the motor area or any part of the pyramidal tract. Only the lower part of the face is paralyzed in apoplexy (compare to Bell's Palsy) The face is involved on the same side as the arm and leg OWING TO THE DECUSSATION OF THE UPPER MOTOR SEGMENT OF THE FACIAL NERVE just as the crossed pyramidal tract (which supplies the muscles of the limbs) decussates. The arm is more paralyzed than the leg. Wasting occurs late. CROSSED PARALYSIS MEANS THAT THE LESION IS IN THE CRUS, PONS, OR MEDULLA: i. e., there is a paralysis of a cerebral nerve on one side with loss of power (or sensation) on opposite side. When HEMIANAESTHESIA is marked the lesion is usually in the internal capsule (posterior limb) (Osler).

In a large proportion of cases of embolism there are signs of ulcerative endocarditis. The embolus enters the carotid artery, the left more often than the right. The embolus may be transmitted to any of the cerebral arteries, and hence expect focal symptoms.

Left middle cerebral: Hemiplegia plus aphasia.

Vertebral: acute bulbar paralysis.

Basilar: Double hemiplegia with bulbar symptoms: explain by its relation to the pons.

Posterior Cerebral: Hemianopia and sensory aphasia.

The exaggeration of reflexes in apoplexy is due to the loss of the inhibiting action of the brain (Fisher).

Tumors of the Brain.

Definition: A new growth in the brain, usually glioma, tubercle, gumma, carcinoma or of sarcomatous nature. Tubercles occur most often in children, the others occur in middle life, especially in men (Fisher).

General Symptomatology of Cerebral tumors:

"Symptoms are due to compression of the brain due to increased intra-cranial tension."

The symptoms in chronological development are:

1. **Headache:** persistent, dull, deeply seated and marked by exacerbations.
2. **Mental Insufficiency:** Memory is defective. Many resemble melancholia.
3. **Vertigo and cerebral type of vomit:** Repeated vomiting results in anemia and wasting.
4. **Bradycardia:** Pulse is 50 to 60.
5. **Epileptiform convulsions:** Such convulsions may also be focalizing.
6. **Choked disk:** due to optic neuritis.

Note: All symptoms develop gradually.

Focal Symptoms: See under Topical Diagnosis.

Tumors in Cerebral Hemispheres may produce symptoms such as hemiplegia, monoplegia, deafness, blindness, etc.

Tumors in Cerebellar Hemisphere: ataxia, etc.

Tumors at Base of Brain: may implicate any of the cranial nerves at the base of the skull. The compression of the nerves by the tumor results in paralysis. The nerves most frequently involved and their results are:

Motor Oculi: iii. Owing to paralysis of the Superior Oblique, patient is unable to turn eye outward and downward. If patient attempts to look down, diplopia results.

Abducens: vi. Internal or convergent squint, owing to paralysis of External Rectus. Also contraction of pupil.

Trigeminal: v. Sensory and motor symptoms.
Anaesthesia on half of face on same side as lesion.
Insensibility of the conjunctiva and cornea destroyed.
Paralysis of muscles of mastication.

Hypoglossal xii and Spinal Accessory xi: Produce bulbar symptoms.

Chorea.

Definition: A disease of childhood characterized by motor disturbances, irritative in nature, developing slowly, attacking those children who suffer either from rheumatism or valvular disease.

Symptoms:

Onset: is insidious:

1. **Irregular, involuntary, jerky, spasmodic, inco-ordinate movements** affecting any group of muscles, but showing a tendency to attack the upper extremity first. The affection of the face and tongue gives rise to various facial contortions and grimaces. After having persisted for some time the muscles become weak and paretic.
2. **Mental Disturbances:**
   Irritability, temper, weakened memory.
3. Liability to the development of **Endocarditis** and **Valvular Disease of the Heart.**
4. **Relapses:** common during the course of the disease.

Paralysis Agitans.

Definition: A disease of elderly persons characterized by tremor and spasticity.

Symptoms: develop gradually:

1. **Tremor:** Usually begins in the hand, especially in the right, and then involves the arm and leg of the same side, then the other side, and finally becomes general. The tremor has a fine, uniform, oscillatory character. The attitude of the hand is compared to "pill-rolling."
   Although the tremor is continuous, the tremor can be controlled voluntarily for a short time only.
2. **General Muscular Rigidity:**
   Parkinson's Mask signifies that the face shows a stolid, wooden expression.
   Peculiar walk: results from stiffening of the muscles of the trunk. The body is bent forward and moves slowly *"en masse."*
   Propulsion and retropulsion movements can be elicited, due to altered position in which the patient carries himself (Strümpell).
   Chronic cases must take to bed owing to extreme weakness.
3. **Sensation is not impaired.**

Acute Anterior Poliomyelitis.

Definition: An inflammatory and degenerative disease of the gray matter of the cord and brain (usually the former alone, only attacking the anterior horn), occurring in epidemics, by preference in children and characterized by a flaccid paralysis.

The disease also occurs in a chronic form, and sometimes adults are affected.

Symptoms:

Initial Stage:

Sudden onset with high fever and with or without vomit. Headache, muscular pains and twitchings, all of which last a variable time up to one week.

Subsequent Symptoms:

1. Gradual development of a **flaccid paralysis,** which is UNSYMMETRICALLY distributed. Since both cranial and spinal nerves may be involved expect to find monoplegia associated with some lesion of eye, face, etc., dependent upon the cranial nerve affected. The paralysis usually selects some part in which there is a large muscular group and in those parts it tends to remain persistent while the other parts improve a little quicker. The tibial and peroneal groups suffer most frequently. Recovery being only partial, deformities are apt to ensue.

2 **Loss of muscle power is followed by atrophy** or wasting of the affected muscles. Hence, atrophy makes its appearance some time after the paralysis.

When atrophy is well marked, there is

{ No response to faradic current.
{ Reaction of degeneration.

The growth is stunted and deformities appear.

Clubfoot is very frequent.

3. **Absence of tendon and cutaneous reflexes** after paralysis has occurred (due to interruption of reflex arc). Sensation of bladder is unimpaired.

4. **Trophic Disturbances:**

Extremities cold and cyanotic.
There may be excessive sweating.

Myelitis.

Definition: A **primary** inflammation of the substance of the cord (diffuse or transverse) resulting in degeneration of the affected parts, and is usually regarded as being an infectious process of an unknown nature (Strümpell).

Secondary myelitides develop by extension of inflammation from adjacent structures.

Dependent upon the rapidity of the onset of the symptoms, the disease is classified as being **acute** and **chronic.** Usually the disease begins acutely and passes into the chronic stage.

Diagnosis: Must be derived by exclusion of other columnar disease, and by noting all symptoms in any given case. The symptoms depend upon the part or parts and length of the cord affected.

The General Symptomatology is as follows:

Motor Disturbances: A weakness of those muscles whose nerve supply has been cut off, and is soon followed by paraplegia. In cervical myelitis, both arms and legs are paralyzed. In dorsal myelitis, the upper extremities are free, and likewise arms are free in lumbar myelitis.

In complete transverse myelitis, the paralysis is bilateral.

If the lesion is not destructive, but irritative, the affected muscles will show twitchings.

Atrophy of the affected muscles is more apt to occur in the dorsal and cervical regions than in the lumbar region.

In all cases there is disturbance of bladder and rectum.

Sensory Symptoms: Sensation is disturbed only below the lesion, just as there is paralysis below the lesion. Anaesthesia occurs a little later than the paralysis.

Cutaneous and Tendon Reflexes: In lumbar myelitis, it is, as a rule, absent. It is exaggerated in dorsal myelitis. Little or no change in cervical myelitis. These statements are not absolute. Reflexes in general, in myelitis, are most often exaggerated (the dorsal region being most often affected because it is narrowest and more exposed) (Strümpell) (Stilling). The absence of the knee jerk signifies that the disease is in the lumbar segment.

Rectal and Vesicle Disturbances: any of the following: Difficult micturition, cystitis, incontinence. Constipation, incontinence of feces.

Trophic Disturbances: Atrophy of muscles result in contractures (Modern Clinical Medicine) (see above). If the anterior horn is simultaneously involved, atrophy will be greater. Extremities are cold and cyanotic.

Bed sores are prominent features of this disease. They may develop with remarkable rapidity.

Note: Spastic paralysis occurs below the lesion owing to descending degeneration of the lateral tract. If anterior horn is destroyed, the muscles it supplies are flaccid. Acute cases begin with high fever (a good point in favor of the "infectious" theory).

Tabes Dorsalis.

Definition: A chronic, degenerative disease commencing in the posterior root ganglia (which nourish the posterior root fibers), ascending in the posterior columns of the cord, and affecting some of the cranial nuclei (Fisher) (especially oculo-motor and abducens), characterized by early sensory and late motor disturbances. The disease occurs principally in syphilitics.

Symptoms:

Prodromal Stage: in which sensory symptoms predominate.

1. **Subjective symptoms:**
   (a) Lightning pains in any part of the body below the waist line.
   (b) Parasthesia follows the pains. It may be in the form of formication, numbness, or sensation as if patient were walking on carpet or velvet. A sense of constriction about the trunk is most diagnostic and is spoken of as "GIRDLE SENSATION."
   (c) Slight bladder and sexual disturbances.
   (d) Feeling of exhaustion or uncertainty of the legs.
   (e) Ocular disturbances: any of the following: Strabismus, diplopia, amblyopia. Optic neuritis never occurs but optic atrophy does (Fisher).

2. **Objective symptoms:**

(a) Absence of patellar reflex (Westphal).

(b) Reflex rigidity of pupil (Argyll-Robertson). The pupil reacts to light but not to accommodation. Is usually associated with myosis.

(c) Swaying upon closure of the eyes just begins to appear (Romberg). Symptom of inco-ordination.

(d) Sensation of pain and temperature reduced. There is also loss of power of localization (space sense). Tactile sense not much affected. Muscle sense retained. There may be a girdle zone of hyperasthesia.

Ataxic Stage: in which motor symptoms predominate.

Muscular inco-ordination becomes marked. There is loss of sensation of position of limbs and posture.

The reduction of tonicity of muscles results in abnormal mobility.

Ataxic gait is diagnostic. Ataxia of upper extremity occurs later than the lower.

In advanced cases, patients become invalids. They may die from some genito-urinary or pulmonary complications.

VISCERAL CRISES: are pathognomonic of this disease. The stomach and larynx are most often affected. The sudden onset of stomach symptoms may often result in making a wrong diagnosis: gall-stone colic, stone in kidney, appendicitis, etc.

Note: Any of the cranial nerves may be involved, therefore seek such symptoms referable to them (Fisher).

In order of frequency: the third, fourth, sixth and second nerves suffer most.

Friedreich's Ataxia.

Definition: A hereditary disease characterized by progressive ataxia, beginning in the legs, then involving trunk and arms, but is not associated with loss of reflexes. It attacks several members of one family. The columns of the cord that are affected are: Gall, Burdach, pyramidal, Gower and Clark

Diagnosis:

1. Ataxia developing in rather young persons:

   The ataxia is of the cerebellar static type. The gait is waddling and similar to the gait of a drunken man. The movements are irregular and the limbs cannot be flexed in any desired position. The inco-ordination then proceeds up higher.

2. **Defect in Speech:**

   Slow, scanning, uncertain, and marked by explosive utterances

3. **Nystagmus.**
4. **Talipes equinus and scoliosis are common** (Osler).
5. **Absence of sensory disturbances.**
6. **Reflexes remain.**

Neuritis.

Definition: An inflammation of a nerve.

Classification: (a) single or multiple

(Fisher) (b) toxic and traumatic.

Cardinal Symptoms of a Local Neuritis:

1. **Pain:** is tearing or stabbing and present all the time. Is limited to the distribution of the nerve.
2. **Painful Motion.** Patient refrains from moving the affected part.
3. **Local tenderness on pressure over nerve.**
4. **Paralysis:** (only in mixed nerves) Occurs in nearly all those muscles supplied by that nerve affected. Some muscles may only be paretic and not paralyzed. The paralysis is due to a degenerative process and therefore is soon followed by atrophy. Deformities are a later feature. The paralysis at first is flaccid. The rule is that reflexes are markedly decreased, and in many cases they are absent.
5. **Electrical Variation:** We usually find that the affected muscles respond sluggishly to both faradic and galvanic currents. When there is found the reaction of degeneration the prognosis is bad
6. **Absence of sensory symptoms** occurs in the largest proportion of cases.

Special Varieties of Polyneuritis:

Definition: simultaneous inflammation of many nerves.

Alcoholic Polyneuritis: The diagnostic features are:

1. Occurs in chronic alcoholics, especially after an attack of delirium tremens or after an acute infectious disease. There are other signs of alcoholism present: i. e., gastric catarrh resulting in vomiting of mucus, tremor, insomnia, etc. The attack comes on suddenly.
2. Neuritis of the lower extremities results in ataxia or paralysis. Foot-drop occurs and the gait is wabbling in character. The calf muscles are painful on pressure. A reliable sign is that the disease is symmetrically distributed. Romberg's symptom may be present. The paralyzed muscles atrophy and when marked show the reaction of degeneration.
3. The upper extremities are also symmetrically affected, resulting in double wrist-drop. The damage done is not as great as in the lower extremities.
4. There are tearing down pains combined with all kinds of sensory disturbances (Modern Clin. Med.). The rule is that pains precede paralysis. The nerves are painful on pressure.
5. Reflexes: It is absent in the paralyzed muscles. The paralysis is flaccid but the muscles may become hard in chronic cases. Flaccidity may be masked by œdema of the feet.
6. Mental Phenomena: (Korsakoff's Syndrome) The memory is disoriented as to time and place. The patient fills in the defect with "confabulations."

Note: Must be differentiated from locomotor ataxia.

Arsenical Polyneuritis. The diagnostic features are:

1. Acute onset of gastro-intestinal symptoms as: pain, vomiting and diarrhoea, and a week elapses before the neuritis manifests itself.
2. The legs are more seriously affected than the arms, and to a greater extent than it is in alcoholic polyneuritis. (Modern Clinical Medicine.)
3. Sensory disturbances are present in conjunction with paralysis and atrophy, i. e., paresthesia and pain.

Lead Polyneuritis: The diagnostic features are:

1. Occurs only in CHRONIC plumbism.
2. Co-existing signs of lead poisoning as:
   Blue lines on gums, anemia, lead colic, etc.
3. The upper extremities are most markedly affected. Weakening of muscles is eventually followed by paralysis. Wrist drop is very well marked. The muscles supplied by the radial nerve are chiefly affected. (Certain muscles are however excluded, and this is a valuable sign.) The extensors are completely paralyzed. The legs are rarely affected.
4. There are absolutely no sensory disturbances.

Bell's Palsy.

Definition: The most frequent form of peripheral paralyses is Bell's Palsy or paralysis of the facial nerve. It usually follows exposure to cold, rheumatism and diseases of the middle ear. It also occurs as a symptom of apoplexy.

Diagnosis: The onset is usually acute.

1. Change in facial expression, due to paralysis of the facial muscles. Expression is gone, wrinkles are obliterated, the mouth droops and is drawn to the healthy side. There is ectropion and epiphora. The lids cannot cover the eyeball completely. The patients are unable to whistle and to blow that paralyzed cheek out. The **entire half** of the face is affected.
2. Disturbance in taste on the anterior two-thirds of the tongue (on the paralyzed side). The saliva is also reduced in amount, hence the mouth is dry.
3. Hearing in some cases may become very acute.

   Note: The presence or absence of the second and third group of symptoms depends upon the part of the facial nerve affected. After the nerve has emerged from the stylo-mastoid foramen, these two groups of symptoms cannot occur.
4. Electrical Reaction: In a case of ordinary severity:

   There is either complete failure to respond to the faradic current or perhaps a slight response.

   Reaction of degeneration to a variable degree.

Note: When facial paralysis is associated with hemiplegia, as occurs in cerebral hemorrhage, the face is affected on the same side as the arm and leg, but only the **lower half** of the face is involved, hence eye symptoms are not present. In all cerebral lesions the electrical reactions are normal.

Note: The facial nerve is purely motor, hence sensory symptoms do not occur. If present it signifies concomitant involvement of the trigeminal (Fisher).

Hysteria.

Definition: It is best defined by Möbius as being "a state in which ideas control the body to produce morbid changes in its function" (Osler). Strümpell asserts that it is a psychosis—a disease of the mind.

It belongs to the class of so-called functional diseases, because we have not as yet been able to discover an anatomical change to account for this disease.

Diagnosis: In spite of the multiplicity of symptoms characterizing this disease, there are some that appear with greater frequency and are called "Hysterical Stigmata." These symptoms may be: sensory, motor, secretory, vaso-motor and visceral. At any time during the disease an "hysterical" **attack** may occur in which convulsions are manifested.

Hysterical Stigmata:

1. **Sensory disturbances:**
   - (a) Absolute total **Hemianaesthesia.**
   - (b) **Hyperaesthesia:** The chief location is on the head (sagittal suture), and the trunk (in front of the chest and on the vertebrae).
   - (c) **Areas of Analgesia.**
   - (d) **Disturbances of special senses:** in which there may be a reduction of visual acuity, of hearing, taste and smell.
   - (d) **Loss of Muscle Sense** (Duchenne). If eyes are closed, patient cannot locate position of the anaesthetic part.

2. **Motor Disturbances: Paralysis: Contractures: Spasms:**

It is not a true paralysis: the patient cannot concentrate his mind on using the part.

The paralysis is usually flaccid and atrophy never occurs and the electrical reaction is normal.

The extremities (left) are more often affected than the face (Weir Mitchell).

Hysterical contractures are most often found in the extremities and can be made to disappear by narcosis.

The clonic spasms may affect any muscles.

3. **Visceral Disturbances:**

Hemorrhages from any part of the body

Gastro-intestinal symptoms: pain, vomit, diarrhoea or constipation, tympanites, gaseous eructations.

Spasmodic coughs. Attacks of dyspnoea.

All secretions are either increased or decreased.

Hysterical joint.

Hysterical fever.

4. **Mental Features:**

Emotional, irritable, desire seclusion.

Are easily influenced by suggestion.

The ATTACK described:

Minor Convulsive Hysteria:

Prodromes:

Emotional disturbances:

Aurae: visceral in nature: either pelvic, abdominal or thoracic.

Globus Hystericus:

Convulsion: The patient exhibits disorderly and clonic movements and before falling selects a suitable spot. (Compare to epilepsy.) Consciousness is never completely lost. They recover from the attack in a few minutes.

Major Convulsive Hysteria or **Hystero-Epilepsy:**

There occurs a violent exhibition of generalized epileptiform convulsions succeeded by a stage in which peculiar facial grimaces occur—"clownism."

Neurasthenia.

Definition: A functional disturbance characterized by a weakness and exhaustion of the nervous system, giving rise to various forms of mental and bodily insufficiency (Osler).

Symptoms: Morbid ideas.

The patients imagine themselves to be suffering from any disease that they take a fancy to.

They are pessimistic and manifest fears of everything.

Insomnia is always present.

Marked weakness and restlessness with inability to perform any kind of work no matter how trifling.

Hyperasthesia, especially to sensation of pain, is pathognominic of this disease.

Marked irritability.

The countenance depicts constant anxiety.

Pressure of any part of the head.

Neurasthenic asthenopia (Binswanger), or an irritable eye is quite frequent.

Reflexes are as a rule increased.

Special Forms: These are recognized according to the part of the body to which the symptoms seem to chiefly point: hence we have gastric, spinal cardiac and sexual neurasthenia, etc.

Note: Make a thorough examination of the body in order to exclude organic disease.

Watch the actions of the patient and manner of dress.

Epilepsy.

Definition: A functional neurosis characterized by repeated paroxysmal attacks of a varying degree of unconsciousness associated either with or without convulsions.

Diagnosis: True epilepsy must not be confounded with epileptoid convulsions as may occur in many other diseases; as brain tumor, general paresis and irritation of the motor cortex, etc.

The disease may be mild (in which there may be no convulsions, but dizziness associated with a brief coma), and is called **"Petit Mal,"** or the attacks may be very severe, **"Grand Mal,"** in which convulsions are marked.

The paroxysm described:

Prodromes:

Aura: usually sensory in character. The aura may arise from the stomach or any peripheral part. Regarding the aura of special sense, those of smell and sight predominate. The same aura always precede in any given case.

The attack: comes on suddenly, the epileptic falls on the spot, making no effort to guard his fall so as to prevent injury. (Compare to hysteria.) A characteristic cry may be uttered before falling. The convulsions are generalized, and are at first tonic (continued) and later clonic (intermittent). The tongue may be bitten during the attack. The convulsions last several minutes and are followed by a stage of coma.

Comatose Stage:

Face: which at first was pale, now becomes cyanosed. Is turned to one side.

Pupils: dilated and INSENSITIVE.

Respiration: decreased at first, then stertorous.

Pulse: slightly increased.

Temperature: normal or slightly elevated.

Sphincters: Their control may be lost.

Recovery: The patient recovers without having any knowledge of what has occurred. For several days after the attack he may be troubled with headache, exhaustion and irritability.

Note: Between paroxysms, symptoms are wanting.

Bromide Therapy.

The fact that the bromides were very early adopted by our Pharmacopoeia is sufficient evidence that these drugs are valuable remedial agents. This statement is borne out by clinical findings. After many years of experimentation we have come to the conclusion that the bromides are indispensable in the treatment of all nervous diseases.

The **indications** of the bromides can readily be deducted from the **physiological action** of these drugs. The bromides in general are classified as nerve sedatives, owing to their depressant action on the brain and spinal cord. The bromides, in sufficiently large doses, act as a narcotic, but to a far lesser extent than opium. In simple cases of sleeplessness, not attended with pain, the bromides will produce satisfactory hypnosis.

Although the bromides are regarded as cerebral depressants, it must be conceded that these drugs have a selective action on certain parts of the brain, in which places they act most strongly. The cortical motor area is most influenced. For this reason the bromides are indicated in all forms of **cortical epilepsy,** because it is universally accepted that the bromides can control this form of motor irritation. The convulsive seizures in epilepsy proper, yield more easily to the bromides than to any other medicament. They are regarded by some as being specifics in this disease. While a hereditary predisposition is an important etiological factor in epilepsy, yet epileptoid symptoms may be met with as a sequel to fractures of the vault, when localized in the neighborhood of the motor area. The depressed bone acts as an irritant to the cortical gray matter, hence convulsions follow. Here, also, do the bromides check the motor irritation. Inasmuch as the bromides do not act on the sensory area of the brain, it follows that the bromides are not indicated for the relief of actual pain.

Proceeding from the brain down to the spinal cord, we find that the bromides also exert a depressant action on this delicate nerve structure. It is the universal opinion that the center for sexual excitement is located in the lower part of the cord, and that the bromides will lessen the excitability, hence they are indicated for relief from **excessive sexual desire.** The anaphrodisiac action is exhibited shortly after its administration, and if taken for a considerable length of time, the result may be a total loss of sexual desire and sexual vigor.

The spinal cord is a great reflex center and has been proven by experimentation with frogs (although more marked in the frogs than in man). For this reason the bromides occupy an important

place in the treatment of **strychnine poisoning** and **tetanus,** because they diminish the reflexes, thus controlling, in part, violent muscular action. The bromides depress both the reflex centers and the sensory nerves, although to a lesser extent than chloral. The combination of bromides and chloral is very efficacious in these cases.

Convulsions occur very frequently in children. As a rule they can be attributed to some intestinal and stomachic derangement. In such cases, if the bowels are cleared by an enema and some purgative be also given (preferably calomel), and in a few minutes followed by a dose of bromides, the convulsions will be satisfactorily controlled Strümpell recommends the bromides in Infantile Convulsions.

In the treatment of **chorea,** the bromides are almost as efficacious as the various forms of arsenic. Many cases that fail to respond to Fowler's Solution have readily yielded to the bromides.

In the course of chronic alcoholism, a condition known as **Delirium Tremens** may occur, and very often is stubborn to treat. Of all the remedies that have been tried, the combination of bromides and chloral has proven most efficacious. Supporting treatment should never be neglected in these cases.

The **climacteric period** in women is almost always associated with manifold nervous phenomena. In these cases mild sedative drugs are indicated. For this purpose the bromides act favorably.

In many forms of **migraine** the bromides are valuable, and will succeed when other remedies have failed.

Many female pelvic diseases render the afflicted subject to **nervous outbreaks** of reflex nature: as headache, ovarian neuralgia, and increased sensibility of all parts. The bromides have been satisfactorily employed in the treatment of these outbreaks, and the relief in many cases has been very prompt.

When used for a long period of time, especially when the impure bromides are employed, the condition known as **"Bromism"** may occur. It signifies that the body has been fully saturated with bromides. The **diagnosis** can be made as follows:—

1. Mental heaviness and inability to concentrate the mind.
2. Partial aphasia and difficulty in talking.
3. Ataxic gait.
4. Abolition of sexual desire.
5. Cutaneous eruptions, with acne predominating.
6. Indigestion.
7. The symptoms will disappear as soon as the drug is withdrawn.

Note: The chances of the appearance of bromism may be minimized by the following precautions:—

(a) Employ the pure bromides.

(b) Exercise the excretory organs: skin, bowels and kidneys. Frequent warm baths are very efficacious.

(c) Stop bromides at frequent intervals.

Clinical deductions on the various bromide preparations:

1. In order to insure the best results the bromides must be pure, i. e., free from alkalies and almost free from chlorides. The U. S. P. allows three per cent of chlorides. Peacock's Bromides contains only half of this impurity. Bromism is therefore less frequent in those cases in which this preparation is employed.
2. Since the bromides have a distinctly bitter taste, it behooves the practitioner to properly disguise the taste. Peacock's Bromides answers this purpose admirably. Furthermore all bromides should be properly diluted so as to prevent derangement of the stomach. Impurities render the patient more liable to indigestion as well as to bromism.
3. The best result is obtained by prescribing a combination of bromides. Peacock's Bromides is an elegant combination of the Potassium, Sodium, Ammonium, Calcium and Lithium Bromide in such a proportion that each teaspoonful represents 15 grains of the combined bromides. Hence, convenience of administration and accuracy of dosage are the advantages of this preparation. In children, where small doses are needed, the dosage can be properly adjusted.
4. Chloral and the bromides are synergists. In many cases the combination of chloral and bromides acts better than when any of the drugs are used alone.
5. Peacock's Bromides possess a distinct advantage over all preparations prepared by the prescription pharmacist. There is nothing secret in this compound. All the ingredients are recognized by our Pharmacopoeia.

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